

BEST AVAILABLE COPY

Attorney Docket No.: 01CON211P

REMARKS

By the present amendment, independent claims 1 and 10 have been amended. Thus, after the present amendment, claims 1-5, 7-13, 15-18 and 28-31 remain in the present application. Reconsideration and allowance of pending claims 1-5, 7-13, 15-18 and 28-31 in view of the above amendments and following remarks are requested.

In the Office Action dated July 14, 2004, the Examiner has *finally rejected* claims 1-5, 7-13, 15-18 and 28-31 pending in the application on the basis of new grounds of rejection and newly cited art. Applicant respectfully requests reconsideration and withdrawal of the finality of the rejection of the Office Action dated July 14, 2004.

A good and sufficient reason why the present response is necessary and was not earlier presented is that entirely new references have been cited in the present final rejection dated July 14, 2004 (37 CFR §1.116 (c)). The new references are U.S. Patent Number 6,117,789 to Lee, et al. ("Lee"), U.S. Patent Number 5,929,510 to Geller, et al. ("Geller"), and U.S. Patent Number 5,422,307 to Ishii ("Ishii"), which are for the first time brought to Applicants' attention by means of the present *final rejection* dated July 14, 2004. The new references, i.e., Lee, Geller, and Ishii, were not cited in the present application prior to the instant final rejection. Since Lee, Geller, and Ishii are references upon which the Examiner has now relied, Applicants believe that it would be manifestly unfair for the Patent Office not to consider Applicants' arguments which are necessitated due to the newly cited references, Lee, Geller, and Ishii. As such, a good and sufficient

Attorney Docket No.: 01CON211P

reason exists, as required by 37 CFR §1.116(c), for considering Applicants' present response and withdrawing the finality of the present Office Action.

A. Rejections of Claims 1 and 10 under 35 USC §112, ¶ 1

The Examiner has rejected claims 1 and 10 under 35 USC §112, ¶ 1, as failing to comply with the written description requirement. Applicants have amended independent claims 1 and 10 and respectfully request that the rejections thereto under 35 USC §112, ¶ 1, be withdrawn.

B. Rejections of Claims 1, 7, 10, 15, 28, and 30 under 35 USC §103(a)

The Examiner has rejected claims 1, 7, 10, 15, 28, and 30 under 35 USC §103(a) as being obvious with respect to Lee and Geller. For the reasons discussed below, Applicants respectfully submit that the present invention, as defined by amended independent claims 1 and 10, is patentably distinguishable over Lee and Geller.

Embodiments according to the present invention achieve a metal resistor that can be advantageously added to a standard aluminum backend process used in IC chip fabrication without impacting or disturbing the aluminum backend process flow. In one example, a standard two-step dielectric deposition process can accommodate the patterning of the metal resistor on a first intermetallic dielectric layer followed by depositing a second intermetallic dielectric layer over the metal resistor. Further, the present novel scheme of accommodating the standard two-step dielectric deposition to

Attorney Docket No.: 01CON211P

integrate the metal resistor between two adjacent (i.e. sequential) interconnect metal layers does not significantly increase via etch depth, and thus advantageously results in a simplified via etch process.

Amended independent claims 1 and 10 recite, in part, "a metal resistor situated over said first intermetallic dielectric layer, said metal resistor being only connected to a second interconnect metal layer . . . said second interconnect metal layer over said second intermetallic dielectric layer, wherein said first and second interconnect metal layers are adjacent to each other and wherein said metal resistor is situated between said first and second interconnect metal layers."

In contrast to the present invention as defined by amended independent claims 1 and 10, Lee is directed to a reduced-cost method of manufacturing a thin film resistor layer exhibiting efficient electrical operation. A first insulating layer is formed on a substrate. A thin film resistor layer is formed on the first insulating layer. A second insulating layer is formed on the thin film resistor layer. The Examiner states, correctly, that Lee does not disclose a first interconnect metal layer.

Furthermore, Lee does not disclose, teach, or suggest first and second interconnect metal layers adjacent to each other and a metal resistor situated between the first and second interconnect metal layers. Lee also does not teach the advantages inherent in the claimed configuration.

Lee does not disclose, teach, or suggest the configuration of amended independent claims 1 and 10. Furthermore, there is no teaching or suggestion to combine or modify

Attorney Docket No.: 01CON211P

Lee. Therefore, Lee, singly or in combination with other art of record, does not disclose, teach, or suggest the present invention as defined by amended independent claims 1 and 10.

Geller does not cure the deficiencies of Lee. Geller is directed to an electronic integrated circuit (IC) that includes at least one of radio frequency, microwave, digital, and analog components connected in a desired circuit. The IC includes a substrate of a conductive material having on a surface thereof a body of a dielectric material formed from a plurality of dielectric layers. A plurality of strips of a conductive material are on the surfaces of the layers of the body to form RF, analog, and digital components.

The Examiner asserts that Geller teaches first interconnect metal layer 22 under first intermetallic dielectric layer 30 and resistor 46. However, Applicants respectfully submit that Geller in fact merely teaches metal strip 22, dielectric material 30, and strip 46. See, for example, Geller at Figure 1 and column 2, line 45. Moreover, Geller does not disclose, teach, or even suggest first and second interconnect metal layers adjacent to each other and a metal resistor situated between the first and second interconnect metal layers. Geller also does not teach the advantages inherent in the claimed configuration.

Geller does not disclose, teach, or suggest the configuration of amended independent claims 1 and 10. Furthermore, there is no teaching or suggestion to combine or modify Geller. Therefore, Geller, singly or in combination with other art of record, does not disclose, teach, or suggest the present invention as defined by amended independent claims 1 and 10.

Attorney Docket No.: 01CON211P

C. Rejections of Claims 2-5, 8, 9, 11-13, and 16-18 under 35 USC §103(a)

The Examiner has rejected claims 2-5, 8, 9, 11-13, and 16-18 under 35 USC §103(a) as being obvious with respect to Lee, Geller, and U.S. Patent Number 6,627,539 to Zhao, et al. ("Zhao"). Applicants respectfully submit that claims 2-5, 8, 9, 11-13, and 16-18 depend from amended independent claims 1 and 10, respectively, and thus, claims 2-5, 8, 9, 11-13, and 16-18 should be allowed at least for the same reasons discussed above in conjunction with patentability of amended independent claims 1 and 10.

D. Rejections of Claims 29 and 31 under 35 USC §103(a)

The Examiner has rejected claims 29 and 31 under 35 USC §103(a) as being obvious with respect to Lee, Geller, and U.S. Patent Number 5,422,307 to Ishii ("Ishii"). Applicants respectfully submit that claims 29 and 31 depend from amended independent claims 1 and 10, respectively, and thus, claims 29 and 31 should be allowed at least for the same reasons discussed above in conjunction with patentability of amended independent claims 1 and 10.

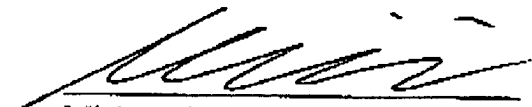
E. Conclusion

Based on the foregoing reasons, the present invention, as defined by amended independent claims 1 and 10 and claims depending therefrom, is patentably distinguishable over the art cited by the Examiner. As such, and for all the foregoing

Attorney Docket No.: 01CON211P

reasons, an early Notice of Allowance directed to all claims 1-5, 7-13, 15-18, and 28-31 remaining in the present application is respectfully requested.

Attorney Docket No.: 01CON211P

Respectfully Submitted,
FARJAMI & FARJAMI LLPDate: 9/20/04
Michael Farjami, Esq.
Reg. No. 38,135FARJAMI & FARJAMI LLP
26522 La Alameda Ave., Suite 360
Mission Viejo, California 92691
Telephone: (949) 282-1000
Facsimile: (949) 282-1002CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being filed by facsimile transmission to United States Patent and Trademark Office at facsimile number 703-872-9306 on the date stated below. The facsimile transmission report indicated that the facsimile transmission was successful.

Date of Facsimile: 9/20/2004LESLEY L. LAM
Name of Person Performing Facsimile TransmissionLesley L. Lam 9/20/04
Signature DateCERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Date of Deposit: _____

Name of Person Mailing Paper and/or Fee _____

Signature _____ Date _____

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.